BATS SURVEYS OF AZURE CAVE AND THE LITTLE ROCKY MOUNTAINS: 1997-1998

A Report to:

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ABSTRACT

Surveys of bat activity in the Little Rocky Mountains of Phillips County were conducted in 1997 and 1998 to supplement survey data gathered in 1996. Focus of the 1997-1998 field work was bat use of Azure Cave, the largest bat hibernaculum in the state and one of the largest in the Pacific Northwest and Northern Rocky Mountains regions. Three rock-shelter caves were also evaluated for bat use. Three hibernation counts in Azure Cave (April 1997 and 1998, November 1998), and two trapping sessions at the mouth of Azure Cave (October 1997, September 1998), were conducted during the study.

Counts of hibernating bats in Azure Cave indicated a significant increase since 1978, the first count available for the cave, and the only complete count for the hibernation period. In April 1978, maximum count was 528. Mean counts in April 1997 and 1998 were 1246 and 1120, respectively. Mean count in November 1998 was 1604. Four species of bats were documented in Azure Cave in 1997-1998: Townsend's Big-eared Bat (*Corynorhinus townsendii*), Big Brown Bat (*Eptesicus fuscus*), Little Brown Myotis (*Myotis lucifugus*), Long-legged Myotis (*Myotis volans*). Most use continues to be by species of *Myotis*.

Two nights of netting in October 1997 at the mouth of Azure Cave resulted in capture of 15 bats of three species: Townsend's Big-eared Bat (1), Big Brown Bat (13), Little Brown Myotis (1). Two of the Big Brown Bats were recaptured males marked at the cave in October 1996. Two nights of netting at the cave in September 1998 resulted in capture of 150 bats of six species: Townsend's Big-eared Bat (2), Big Brown Bat (49), Little Brown Myotis (82), Long-legged Myotis (10), Western Small-footed Myotis (*Myotis ciliolabrum*) (3), Western Long-eared Myotis (*Myotis evotis*) (4). One male Big Brown Bat, marked at the cave in October 1996, was present in this sample. Significantly more males were present in netting samples of Big Brown Bat, Little Brown Myotis, and Long-legged Myotis, species for which sample sizes were largest.

Within species, especially Little Brown Myotis and Big Brown Bats, mean weights in September were greater than in June or July. For Big Brown bats, weight declined in October, perhaps indicating that late-flying individuals were still attempting to gain fat reserves prior to hibernation. Alternatively, they may have been seeking additional opportunities for mating at the expense of accumulated fat stores.

Evidence of bat use was found in two of three rock-shelter caves examined. These caves were shallow (21 m maximum depth), and are most likely used as night roosts. Numerous other limestone pockets and rock-shelter caves, as yet unexamined for bat sign, could be used by bats. Most old mine workings are no longer accessible to bats, but a few could provide significant habitat and merit further examination. Most caves and mines of any size in the Little Rocky Mountains are too cold for use as maternity roosts by bats.

To date, seven species of bats (the six previously listed plus the Hoary Bat, *Lasiurus cinereus*) have been verified in the Little Rocky Mountains, and an additional species (Silver-haired Bat, *Lasionycteris noctivagans*) has been reported, based on vocal recordings. A summary of all records for each species is provided.

Unauthorized human entry into Azure Cave, especially if it occurs during the period of occupancy, continues to be a management concern for protection of the bats using the cave as a hibernaculum. Means to improve security of the gate (while maintaining accessibility for bats), and regular visits to Azure Cave to check on gate integrity, should be considered.

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